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Healthy Weight Toward
Nutrition & Physical Activity Strategies that work!
Nutrition and Physical Activity to Prevent Obesity

Overweight Among School-Age Youth; Healthy Foods and Beverages in Schools

Acknowledgement

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Introduction

The rising tide of obesity in Missouri is not a simple problem. To stem the tide, careful analysis of the factors that contribute to this health hazard and strategic thinking to identify effective ways to control and reverse the problem must occur. During the past two years more than 40 partner organizations and 300 individuals helped to craft Missouri's plan to decrease overweight among children, youth and adults across a broad spectrum of influences. One of the four goals defined in the plan is to increase state-level public policies that promote physical activity and nutritional habits to prevent obesity and chronic diseases and one of the strategy focus areas is schools. The purpose of this paper is to provide Missouri policymakers with critical information about the policy and legislative steps that other states have taken and offer recommendations for state level policy action in Missouri.

Background

Traditional measures for overweight and obesity utilize the Body Mass Index (BMI) scale, which is a measurement of the proportion of an individual's weight relative to that individual's height. Because children's and teens' body fat changes as they grow, BMI is used to assess underweight, overweight, and at risk for overweight.[1] Known as BMI-for-age, it is a gender-specific measurement basing overweight or at risk for overweight status on percentiles – children and teens with a BMI that falls between the 85th and 95th percentile for a gender and age specific population are considered at risk for overweight, while having a BMI in the 95th percentile or higher places children and teens in the overweight category.

These distinctions are important, because evidence has shown that the children who are overweight or at risk for overweight have a much better chance of being obese as an adult than children who are of normal weight. For instance, one study found that for children aged 10 to 15 years, 75 percent of the children who were at risk for overweight were obese adults at age 25, while 83 percent of the overweight children in this age group were obese by the age of 25.[2] Multiple studies indicate that

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the prevalence of childhood obesity has steadily increased over the last twenty to thirty years. The National Health and Nutrition Examination Survey taken from 1971 to 1974 found that 4 percent of children aged 6-11 years were overweight. In 2002, 16 percent of children in this category were overweight. For adolescents aged 12-19 years, 6 percent were overweight in 1974 while 16 percent were overweight in 2002.[3] Public health officials are concerned with the dramatic rise in type-2 diabetes among children and adolescents. Type-2 diabetes was previously considered an adult disease, and it is closely linked with overweight and obesity.[2] The National Hospital Discharge from 1979 to 1999 found that the hospital costs associated with obesity-related diagnoses of diabetes, obesity, sleep apnea, and gallbladder disease among youth aged 6 to 17 years of age more than tripled, from $35 million in 1979-81 to $127 million in 1997-99.[5] In Missouri, 18.6 percent of adolescents screened were overweight, compared to the national average of 14 percent overweight adolescents aged 12-19 in 1999, and the percent of overweight appears to be increasing among students aged 5-11, as 19.4 percent of Missouri students in the population screened were overweight, while in the 2000-2001 school year, the percentage increased to 21.5 percent.[6]

Targeting children is viewed by many as a preventive measure to control health care costs not only for overweight children, but also for chronic diseases that later develop due, in large part, to causally related conditions such as overweight and obesity. Most recognize overweight and obesity as a serious health problem, but this recognition may decrease as media coverage on the topic decreases over time. Legislation introduced on the federal level has been sparse, and this speaks to the difficulty in gaining consensus on the means by which to attack the problem. At the state, and even the local level, many pieces of legislation aiming to combat the problem of childhood overweight have been passed, as consensus may be more viable. State policies are relatively new, so data examining the effectiveness of certain policies are lacking. This being the case, it is essential that state policymakers assess the political climate and take into account all potential stakeholders when crafting policy.

State Policies

The primary goal of policy proposals relating to childhood overweight is to reduce and prevent the prevalence of the problem. A significant number of state policies aim to increase the nutritional value of foods available to students, while oftentimes decreasing the amount of foods the United States Department of Agriculture ("USDA") deems to be "foods of minimal nutritional value" ("FMNV") available to students. Many policies set specific standards defining nutritional parameters. This state policy overview examines the common goal of allowing local school districts a voice in the implementation process. During the past couple of years, approximately 40 states have introduced over 200 bills related to improving the nutritional intake of children with the purpose of decreasing the prevalence of childhood overweight.[7] Since 2003, a number of bills pertaining to childhood overweight prevention and some type of school intervention or school study have been signed into law. Following the final page of this document, **Table 1.2** highlights and briefly explains several of the bills that have been passed since 2003.

Highlights of Select State Policies Enacted

Colorado

In 2004, Colorado Senate Bill 04-103 was signed into law. The bill's intent is that:

1. "School districts work with contractors to increase over time the nutritional value of foods offered to students in school vending machines and to phase in higher nutritional standards as vendor contracts are renewed," and

2. The language of the bill sets forth the nutritional guidelines for the food and beverages that are to be offered in the vending machines, and

3. School districts are to adopt a policy providing "that, by the 2006-2007 school year, at least 50 percent of all items offered in each vending machine or adjoining set of vending machines located in each school of the school district shall meet the criteria set forth" in the bill.

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California

In addition to providing healthful alternatives in school vending machines, many states also have enacted policies regulating the nutritional attributes of foods sold in competition with the National School Breakfast, Lunch, and After School Snack Programs. For instance, in 2003 California enacted Senate Bill 677, which stipulates that "the sale of all foods on school grounds shall be approved for compliance with the nutrition standards" set forth within the bill. These nutrition standards are similar to standards enacted in Colorado, Connecticut and Tennessee, which contain at least one of the following components:

1. An individual food item may not derive more than 35 percent of its total calories from fat (in some instances, this does not apply to nuts or seeds);

2. Not more than 10 percent of a food item's total calories shall be from saturated fat;

3. Not more than 35 percent of a food item's total weight shall be composed of sugar (in some cases this does not apply to the sale of fruits or vegetables); and

4. Beverages sold on school grounds often must consist of one or a combination of the following criteria:

- Acceptable beverages may include milk, as that term is defined in section 25-5.5-101, C.R.S., including chocolate milk, soy beverage, rice beverage, and other similar dairy or non-dairy beverages;

- One hundred percent fruit juices or fruit-based drinks composed of no less than 50 percent juice, without additional sweeteners, may be made available; and

- An electrolyte replacement beverage that contains 42 grams or fewer of additional sweetener per 20-ounce serving may be sold on school grounds.

Arkansas

In 2003, Arkansas passed into law House Bill 1583. Key provisions of the bill included:

1. The legislation provides for the creation of a 15-member Child Health Advisory Committee ("Committee"), requiring the Committee to develop nutrition and physical activity standards and policy recommendations for Arkansas schools;

2. The bill earmarked up to 5 percent of Health Master Settlement Agreement funds for model or pilot programs created under the Act.

3. The bill prohibits food and beverage vending machine access for elementary students. The bill requires schools "to include as part of the student report card to parents an annual body mass index percentile by age for each student".

In 2004, the Arkansas Committee released its nutrition and physical activity standards. While setting forth specific guidelines, the Committee mandated that each school district convene a School Nutrition and Physical Activity Advisory Committee responsible for implementing nutrition and physical activity standards. Among the guidelines, the Committee mandates that the local school district committees maintain minimal nutritional standards, and maintain and update annually a list of recommended locally available healthier options for food and beverage sales venues.

The Arkansas case is significant in that policy is essentially being implemented by local school districts, which in some cases may be a more politically feasible option. Also important to note is that the legislation stipulates at least partial funding for the programs created by the Act.

Kentucky

Kentucky recently put into law (KRS Chapter 158, Sections 2-5), via Senate Bill 172, policy similar to the Arkansas legislation in that the state designates the Kentucky Board of Education as the agency responsible for promulgating:

1. "An administrative regulation…to specify the minimum nutritional standards for all foods and beverages that are sold outside the National School Lunch programs, whether in vending machines, school stores, canteens, or a la carte cafeteria sales.

2. "Minimal nutritional standards shall be based on the most recent edition of the [USDA's] Dietary Guidelines for Americans.

3. "The administrative regulation shall address serving size, sugar, and fat content of the foods and beverages.

4. "School districts may impose more stringent standards than those implemented under the administrative regulation."[8]

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While the Kentucky statute does not provide specific funding that may be necessary in compensating school districts that may lose revenue as a result of policy implementation, the legislation does impose fines on schools that fail to comply with the nutritional requirements set forth in the bill. Revenue created as a result of fines will be transferred to the local school district's school food service fund.

Washington

Some states employ commissions, committees or task forces to set all guidelines for nutrition and/or physical activity requirements, potentially creating a more politically feasible atmosphere under which childhood overweight prevention legislation may be passed. The Washington state legislature in 2004 enacted Senate Bill 5436, which directs the Washington state school directors association to "convene an advisory committee to develop a model policy regarding access to nutritious foods, opportunities for developmentally appropriate exercise, and accurate information related to these topics." The bill is similar to those passed in Arkansas and Kentucky, yet it does not specify any nutritional guidelines to be met. The school directors association made an assessment and, at the beginning of 2005, submitted a model policy. The law requires that each district's board of directors establish its own policy by August 1, 2005.

Texas

In the absence of legislation targeting childhood overweight, some state agencies have distributed to schools policy recommendations regarding nutritional and physical activity guidelines to promote healthier school environments. The Texas Department of Agriculture, in March 2004, issued the Texas Public School Nutrition Policy, which outlined recommendations for minimal nutrition standards, maximum portion sizes, and making fresh fruits and vegetables available daily at all points of services, among other suggestions. This kind of departmental initiative may depend on availability of funds, which may depend on the availability of political support for such expenditures.

Funding

Pouring Contracts

Many school districts earn significant amounts of revenue from vending machines, and school districts often use that revenue to fund extracurricular activities. This fact alone discourages much legislation from gaining support, and it is an issue for which policymakers must account when establishing childhood overweight prevention initiatives in most schools, especially secondary schools. Many state legislative initiatives propose vending machine policies effective only at the elementary, middle, or junior high school levels.

The problem of losing revenue through vending machine restrictions was apparent in an initiative enacted by the Chicago Board of Education. Chicago's Board of Education accepted a new contract with the American Bottling Company that replaced Coca-Cola products with pure juices, sports drinks, and water; the decision resulted in a new contract that guarantees $6.4 million to the schools in revenue and sales while the Coca-Cola contract guaranteed $8.6 million.[9] As mentioned above, it is crucial for school districts to work with contractors as directed in the Colorado bill. In many cases, school districts may be able to work with existing contractors, as soft drink giants such as Coca-Cola and PepsiCo possess product lines that may meet many nutritional standards.

Taxes – Revenue Source & Consumption Impacts

There are currently taxes on such products as soft drinks and snack foods in place in many states and municipalities, and most of these tax revenues are earmarked for general funds.[10] For instance, Arkansas taxes $0.21 per gallon of liquid soft drink and $2 per gallon of soft drink syrups, generating about $40.4 million dollars in annual income.[11] This income is actually designated for a specific program: it funds Arkansas' Medicaid program. There are some other states that have rather hefty sales taxes on soft drinks and snack foods. California has a 7.25 percent sales tax on soft drinks, and this produces an estimated $218 million in annual income for

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the state, which is deposited into general funds.[12] Indiana taxes candy, gum, soft drinks, bottled water, and dietary supplements at a rate of 5 percent; this tax raises $43 million in annual revenue, and this money is designated for general funds.[13] Before it was repealed, Missouri levied a tax of $0.003 per gallon on soft drinks produced in the state, creating between $400,000 and $500,000 per year, which was used for health department inspections of bottling plants.[14]

Even though such taxes exist, redirecting funds or creating new taxes will inevitably meet substantial opposition. It is important to note, however, that small taxes on various food and beverage products have been found to have little effect on overall consumption. Researchers with the USDA's Food and Rural Economics Division, Economic Research Service, found that a 1 percent tax on potato chips alone would reduce annual household purchases (average of 156.28 ounces) by 0.71 ounces, equivalent to 0.28 ounces per person per year, or 42 calories per person.[15] The researchers also found that a tax on potato chips as high as 20 percent reduces purchases by 5.54 ounces per person per year, or 830 calories per person.[16] The revenue-raising potential for even smaller taxes is impressive: national taxes between 1 percent and 20 percent on potato chips alone could generate revenue in the range of $27 million to $501 million.[17] This type of tax could be intended to fund various programs aimed at reducing childhood overweight, as the study displayed the minimal effect on snack food consumption.

Available Evidence

The Centers for Disease Control and Prevention (CDC) in 1996 made recommendations based on available scientific literature and national nutrition policy documents for "ensuring a quality nutrition program within a comprehensive school health program".[18] Schools have consulted these recommendations in creating health programs addressing healthy eating. Schools that have adopted health programs based on the CDC's recommendations have been used

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CDC Recommendations for School Health Programs Promoting Healthy Eating[19]

Recommendations	*Description*
1. Formulate Policy	Adopt a coordinated school policy promoting healthy eating in both the classroom and the overall school environment.
2. Develop Curriculum for Nutrition Education	Implement sequential, comprehensive nutrition education from preschool through secondary school.
3. Choose Relevant Instruction Methods	Provide education that is developmentally appropriate, culturally relevant, fun, participatory and involves social learning strategies.
4. Integrate School Food Service and Nutrition Education	Coordinate the school food service with aspects of nutrition education.
5. Train School Staff	Train all staff involved with nutrition education, focusing on teaching strategies for behavioral change.
6. Involve Family & Community	Involve family members and the community in reinforcing nutrition education.
7. Evaluate the Program	Regularly evaluate the effectiveness of the program in promoting healthy eating, and make changes as appropriate.

as control groups in several studies. The CDC's recommendations are listed in the table on the preceding page.

While there has been significant media coverage of the obesity epidemic, and the problem has gathered political steam, there is not a stockpile of data on the effectiveness of interventions such as the ones discussed in this brief. There is some evidence, however, that speaks to the possibility for positive outcomes resulting from certain state policies. A study was conducted in the Canadian province of Nova Scotia examining the effects of school nutrition programs on rates of overweight among approximately 5,000 fifth graders. The study compared excess body weight, diet, and physical activity across schools with and without nutrition programs. There were three control groups: a group of schools reporting that they had policies or practices in place to offer healthy menu alternatives; a second group included seven schools that are part of a coordinated program incorporating aspects of each of the CDC recommendations for school-based healthy eating programs; and a third group of schools did not have any nutrition policies in place.[20] The study found that the schools incorporating aspects of the CDC programs had significantly lower rates of overweight than schools both with and without reported nutrition programs.[21]

Several studies are available indicating the potential of nutrition intervention programs as they relate to soda consumption and vending machine choices. A study conducted in Britain examined the effects of a school-based educational program aimed at reducing the consumption of carbonated drinks to prevent excessive weight gain in children aged 7-11 years.[22] The program encouraged children to drink more water and less "fizzy" drinks. After 12 months, soda consumption decreased in the intervention group compared with the control group, and the intervention group saw decreases in the rates of prevalence of overweight children upon completion of the study.[23]

Policies limiting or restricting vending machine access are fairly common pieces of state legislation, and there is evidence that being creative with such policies can be effective in positively altering the diets of school-age children. In attempting to alter consumption patterns at a point of sale such as a vending machine, it is important to take into account the effect such an intervention will have on revenue. A vending machine experiment showed strong pricing effects for low-fat vending snack purchases: sales of low-fat snacks increased by 80 percent during a three-week period when low-fat snack prices were reduced by 50 percent, while the average profit per machine per week was reduced to $66 from $116.[24] Similarly, in a high school cafeteria, sales increased two-fold to four-fold when prices for fresh fruit and baby carrots were reduced by 50 percent.[25] Still another study, titled the Changing Individuals' Purchase of Snacks ("CHIPS") explored pricing and promotion strategies (including promotional signage) for influencing low-fat food choices at diverse community sites, including 12 schools in the Minneapolis-St. Paul area. The study found that price reductions of 50 percent, 25 percent, and 10 percent were associated with increases in low-fat snack sales of 93 percent, 39 percent, and 9 percent, respectively.[26]

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Summary

There is much evidence substantiating the fact that childhood overweight and obesity is increasing among America's schoolchildren. A review of existing state policies and available evidence on the effectiveness of interventions in improving healthy food choices in schools points to several factors to consider in adopting policy:

- Adopted policies need to be broad in scope.
- Advisory groups offer necessary guidance in crafting the appropriate scope of policy and legislation.
- It is helpful to provide for local flexibility in administering a plan while mandating adherence to basic levels of nutritional standards.
- An assessment of the prevailing political climate is necessary in crafting policy for legislative passage, which also means evaluating the political viability of various funding mechanisms.
- It is important to realistically address revenue issues and attempt to provide alternatives to offset any potential losses resulting from new policies or mandates.

For a sampling of adopted state legislation that corresponds to several of the aforementioned points see Table 1.1.

Recommendations for Policy Action in Missouri

- Develop minimum standards for a la carte and vending food and beverage options. Schools provide significant amounts of foods to children, and assist them in learning good nutritional habits. Messages received throughout the school setting should be consistent. Foods available at school should reflect messages provided in classroom instruction.
- It is recommended that a la carte and vending food and beverage options and food and beverages sold as fundraisers meet the "Missouri Eat Smart" nutrition guidelines.[27]
- Develop minimum standards for foods and beverages sold as fundraisers. Many schools conduct fundraising activities to support athletics, student clubs and other specific events. Other than selling foods or beverages, funds could be raised by selling non-food items, students assisting community residents with various chores (such as spring cleaning), selling bricks in a walkway or plaques for walls (with donor names engraved), etc.
- It is recommended that foods and beverages sold as fundraisers meet the "Missouri Eat Smart" nutrition guidelines.
- Eliminate the sale and marketing of unhealthy foods and beverages. Marketing is targeted at children through a variety of mechanisms; the two most frequent are television and in-school marketing.[28] Marketing toward youth occurs for a variety of reasons: they have money, they influence family spending, and they are future customers. Children have been found to be affected by marketing.
- It is recommended that sale and marketing of unhealthy foods and beverages that do not meet the "Missouri Eat Smart" nutrition guidelines be eliminated from the school environment.

Table 1.1 – Recommendations in Action

Recommendation	State Bills Adopting Similar Recommendations	Discussion
Adopt policies broad in scope	Kentucky 2005 SB172; Arkansas 2003 HB1503	Both bills broadly address childhood obesity by providing for the maintenance of physical activity and nutritional standards, among other provisions.
Convene an advisory committee	Kentucky 2005 SB172; Arkansas 2003 HB1503; Washington 2004 SB5436	Committees vary from state to state; some are independent, appointed committees, while other legislation appoints the board of education.
Allow local flexibility in administering programs	Kentucky 2005 SB172; Colorado 2004 SB103 & 2005 SB81; Arkansas 2003 HB1503	These bills allow school districts/ schools to adopt school-specific policies, while requiring adherence to legislated nutrition and physical activity standards. CO SB81 does not mandate standards.
Address revenue issues	Colorado 2004 SB103; Arkansas 2003 HB1503	CO SB103 allows schools to work with existing contractors and provides for gradual phase-out of unhealthy vending items. AR HB1503 earmarked up to 5 percent of Health Master Settlement Agreement.

Table 1.2 — Childhood Obesity Prevention in the Schools Highlighted State Legislation Enacted 2003-2005

State, Year Enacted	Bill Name/Number	Description
Arkansas, 2003	A bill to create a child health advisory committee; HB 1583	Develops physical activity & nutrition standards; prohibits vending machine access; BMI reporting; earmarks funds
California, 2003	Childhood Obesity Prevention Act; SB 677	Sets explicit nutritional standards for vending machines
Colorado, 2004	Concerning policies to increase the inclusion of nutritious choices in school vending machines; SB 103	Aims to increase nutritional standards for vending machine foods; sets strict nutritional standards
Connecticut, 2004	A bill concerning childhood nutrition in schools, recess and lunch; HB 5344	Sets standards for school nutrition and physical activity
Illinois, 2003	A bill to conduct a sugar consumption study; HR 147	Aims to determine the effects of sugar consumption on health of school children
Kentucky, 2005	A bill relating to health and nutrition in schools; SB 172	Board of Education to develop nutritional standards for competitive foods
Louisiana, 2004	A bill to amend and re-enact R.S. 17:17, and to enact R.S. 17:17.1, 17.2, and 17.3; SB 871	Broad program to reward schools, commence studies, develop pilot programs
Louisiana, 2004	A bill requesting Dept. of Education to develop school menus, HR 20	Encourages creation of healthy school menus, especially foods containing marine-source long chain Omega-3 fatty acids
Maine, 2003	The Commission to study Public Health was created by Resolve 2003, chapter 95	Appoints commission to study the obesity epidemic and make recommendations
New Mexico, 2004	A resolution requesting a childhood obesity study; HM 28	Requests committee to study nutrition/physical activity; impact of foods/beverages on public school students
Tennessee, 2004	Amends Tennessee Code Annotated, SB 2743	Sets nutritional standards for K-8 schools
Washington, 2004	A bill relating to the sales of competitive foods and other issues; SB 5436	Requires state school directors association/local school districts to develop policies
West Virginia, 2004	A resolution requesting a childhood obesity study; HCR 8	Requests government committee to study childhood obesity epidemic in West Virginia

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